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United States Department of Agriculture.
OFFICE OF PUBLIC ROADS AND RURAL ENGINEERING.

FIELD LETTER
August 1, 1915.

No. 7

DIVISION OF CONSTRUCTION.
V. M. Fairce, Chief.

Projects:

Advice and Inspection.

J. H. Dodge, S. R. C., completed the construction of gravel-clay roads at Mechanicsville and Welchville, Maine, for the State Highway Commission on July 23, and was assigned to Bismarck, N. D., to instruct the County Commissioners of Burleigh County as to the proper method of operating five engine grading outfits.

R. F. Eastham, H. E., is supervising the construction of about 30 miles of earth roads in Weakley County, Tennessee.

J. T. Voshell, S. H. E., July 14-15 conferred with the officials of Norfolk County, Virginia, relative to the improvement of some of the principal roads of the county.

B. F. Heidel, S. H. E., conferred with J. W. Janssen, H. E., at Sarasota, Fla., relative to surveying and preparing plans for a system of roads in Manatee County, Florida, after which he was assigned to continue his work of investigating the road materials of Georgia, with headquarters at Atlanta.

C. T. Harrison gave a number of lectures in Avoyles Parish, La., and was assigned to exhibit road models at the Cotton Carnival and Exposition at Galveston, Texas, which started July 22, and extends until about August 1.

Object-lesson roads.

C. T. Harrison, S. R. C., completed the gravel object-lesson road at Brinkley, Ark., on July 26.

H. L. Arbenz, S. H. E., was assigned July 2 to confer with the officials of Eastville District, Northampton County, Virginia, concerning a system of roads, and to build a short section of sand-clay road to serve as an object lesson.

DIVISION OF ROAD MAINTENANCE.

E. W. James, Chief.

Projects:

Advice and Inspection.

D. H. Winslow. S. R. C., addressed the North Carolina State Good Roads Convention at Asheville July 14 and 15.

V. E. Towles, H. E., addressed the County Good Roads meeting at Princeton, N. C., July 14.

Representative State Systems.

E. W. James is planning an extensive trip in Pennsylvania in connection with the inauguration of the patrol system on the Pennsylvania State roads in forty-six (46) counties.

Post Road Maintenance.

During August E. W. James will visit Maine and Ohio and arrange cooperation with the State organizations covering the maintenance of the Maine and Ohio Post Roads.

Contract has been entered into with Montgomery County, Maryland, for maintaining the Maryland Post Road.

WASHINGTON-ATLANTA HIGHWAY.

Applications have been received or renewed during the past month from the following counties and districts:

Georgia.

7-28,	Dekalb County	\$1425
7- 8,	Morgan	" 1000

North Carolina.

4- 5,	Granville County	...	\$2100
6- 7,	Hoke	500
	Moore County,		
7-25	Moore Co. to Richmond Co. line..		150
7- 1	McNeill Township	...	150
7- 6	Pinehurst to Harris' Bridge	650
	Montgomery Co.....		150



Up to the close of the last fiscal year the total expenditures on the Washington-Atlanta Highway, made under the supervision and with the approval of the Office engineers, have been as follows:

Virginia, Construction and maintenance ...	\$10,534.20
North Carolina, do	41,541.00
South Carolina, do	13,047.29
Georgia, do	55,484.22

Expenses of supervision are as follows:

Virginia,	\$1,590.94	or 15.1%
North Carolina	7,611.09	" 18.03%
South Carolina	2,756.97	" 21.1 %
Georgia	4,459.05	" 8.04%

The total cost of operating the automobiles in use on the road was \$1,753.90, or 10 per cent of the total supervision costs.

D. H. Winslow, S. R. C., has had charge of the Northern Division from Petersburg, Virginia, to Fayetteville, N. C., 265.1 miles; W. L. Spoon, S. H. E., the Central Division from Fayetteville, N. C., to Augusta, Georgia, 272.1 miles; George C. Scales, S. H. E., the Southern Division from Augusta to Atlanta, via Clarksville and via Union Point (2 loops), 303.3 miles.

V. E. Towles, H. E., has been assigned to the project as a whole and has been engaged in the northern and central divisions in Johnston, Harnett, and Cumberland Counties, N. C., and Chesterfield Co., S. C., during the year.

Tentative approval has been given by the Director for the supervision of the alternate route from South Hill to Petersburg, Va., by way of Kenbridge, Lunenburg County, and Blackstone, Nottaway County, Va. An inspection of this road will be authorized at once and arrangements made, if possible, with the local authorities to cooperate on the same basis as usual. D. H. Winslow will have charge of the work.

During the past month Mr. Spoon has made an inspection trip from Sanford by way of Moncure and Chapel Hill, N. C., to inspect a possible direct route from Durham south, which will be much shorter than the present route by way of Smithfield and Fayetteville. The inclusion of these alternate routes will in no way affect the continuation of work on the present route.

Field Experiments.

D. G. Haire, S. R. C., has continued work on re-treatments in Montgomery County, Maryland, along the Rockville Pike. Section 1 and the first half of section 2 have been completed with a uniform treatment of refined coal tar, hot dressed with 5/8-inch gravel, for a total distance of 9,000 feet. The total cost figures are not yet available, but an approximate figure is \$1,612.75. The application averaged about 4/10 gallon per square yard, which was nearly as heavy as the original treatment. This entire re-treatment will be considered hereafter as Section 1 and the length of Section 2 will be correspondingly reduced.

Work on Bradley Lane began July 7, and has progressed satisfactorily. All clearing and grubbing and 80% of the excavation is completed; stabilizing the old surface was begun on July 27. 1550 feet of French drain has been laid; and catch basins built.

S. L. Taylor, J. H. E., has been assigned to Bradley Lane during the present construction.

The repairs on section 10 of the Kensington Road were completed and bitumen is on the ground ready for surface treatment, which will be made on receipt of Torpedo sand.

A new contract has been entered into with Montgomery County, Maryland, placing all the present ~~experimental~~ roads (Connecticut Avenue, Extended, Bradley Lane and Rockville Pike) together with the Maryland Post Road (Falls Road) under maintenance supervision of this Office. This contract supercedes three other contracts under which the Office has been working and is renewable by notice of the Secretary for five years. The county provides \$800 a year towards the maintenance of the designated roads, to be expended at the discretion of the Office.

New Projects.

A plan is now being considered for introducing demonstration maintenance, similar to that on the Washington-Atlanta Highway, on the Central Highway in North Carolina in cooperation with the State Highway Commission. The road in question extends from Beaufort to Asheville and is about 550 miles long.

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10/2

10/2

Some Division statistics.

Total field expenditures under the direction of the Division:

Montgomery Co., Md.,	\$\$\$ 9,498.16
Alexandria Co., Va.,	846.00

Washington-Atlanta Highway,	
Maintenance and construction, Virginia	10,534.20
" " " North Carolina	41,541.00
" " " South Carolina	13,047.29
" " " Georgia	55,484.22

Government expenditures on Washington-Atlanta Highway.

Virginia	1,590.94
North Carolina	7,611.09
South Carolina	2,756.97
Georgia	4,459.05

Miscellaneous projects, outside of Washington	2,223.36
Agricultural Grounds	3,127.39
Overhead expenses, Washington-Atlanta Highway	669.54
" " Montgomery Co., Md.	426.36
" " Alexandria Co., Va.,	31.26
Total Division Expenditures (Construction and maintenance)...	\$150,846.93

Total expenses of Division in Washington	1,554.38
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Per cent of Washington overhead	1.03%
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The total amount of time of technical men spent in Washington in this Division has been almost exactly 40 per cent of one man's time.

The estimated cost of experimental maintenance for 1916 fiscal year on experimental roads in the vicinity of Washington is \$11,543.00.

DIVISION OF NATIONAL PARK AND FOREST ROADS.

T. Warren Allen, Chief.

Projects:

National Forest Roads.

District No. 1. F. E. Bonner, of the Forest Service, in charge. Emergency maintenance work on the Darby-Wisdom Road in the Bitterroot and Beaverhead Forests, Mont., has been completed and regular maintenance is in progress. This is a very important road, built last year, which is now carrying considerable intercontinental traffic. Good progress is being made on the road up along the

west side of the North Fork of the Flathead River in the Black-foot National Forest. In northern Idaho, the Meadow Creek Road in the Pend Oreille National Forest is the only active project.

District No. 2. A. E. Palen, H. E., in charge. Wyoming work is in progress on the Buffalo-Hazleton Road, Big Horn National Forest. Mr. Palen was obliged to assume charge of the work temporarily, since early in the month Mr. Snodgrass, who had been placed in immediate charge of the work, was struck by lightning and killed. In Colorado, in the Routt National Forest, work has been interfered with by rainy weather, but better progress is now being made. Mr. Ashlock of the Forest Service is in immediate charge of this work. In the Black Hills, South Dakota, construction work has been suspended on account of lack of money, but maintenance on constructed roads is in progress.

District No. 3. O. N. Powell, H. E., in charge. Construction is progressing well on the Red River Road in northern New Mexico, with Mr. Waha in immediate charge. Construction work has not yet been started in Arizona.

District No. 4. C. H. Kendall, S. H. E., in charge. In northern Arizona, work is in progress on the Grand Canyon Highway, in the Kaibab National Forest. In Idaho, maintenance work upon the Warren State Road is progressing with a small crew. At present, only a small force is employed upon the road along the Payette River in the Payette National Forest. Arrangements are being made for purchasing a 65-foot steel bridge and erecting it across Deadwood River. In Nevada, because of lack of funds, work has been suspended on the Secret Pass Road, Ruby National Forest, but maintenance work is in progress on the Santa Rosa and Humboldt Roads. In Utah, in the Powell National Forest, Escalante-Winder Road, with the exception of maintenance, work has been discontinued on account of lack of funds. Maintenance was also done on the Monroe Canyon Road and on the Salina Canyon Road, Fishlake National Forest. The Kamas-Stockmore Road, in the Uinta National Forest, Utah, was under construction during the entire month. In Wyoming, construction work was in progress during the month on the Teton Pass Road, in the Palisade National Forest.

District No. 5. C. C. Morris, H. E., in charge. Plans have been completed for the Trinity River Road, from the South Fork to Burnt Ranch in Trinity National Forest, and it is hoped to start construction in the near future.

District No. 6. B. J. Finch, S. H. E., in charge. Work was in progress throughout the month on the Little White Salmon project in the Columbia National Forest, Washington, and on the Alsea River Road, Siuslaw National Forest, Oregon. Jas. T. Schuyler, S. H. E., was relieved by Mr. Finch, and assigned to duty on a survey of a road in the Oregon National Forest, to connect the Hood River Valley with the Barlow toll road.



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National Park Roads.

In Yosemite National Park, B. J. Finch, S. H. E., was in charge, assisted by J. W. Ball, J. H. E., until early in the month, when Mr. Finch was detailed to road work in District No. 6, of the Forest Service, with headquarters at Portland, Ore., leaving Mr. Ball to complete the work on Yosemite Road plans. In Glacier National Park, T. C. Peterson, J. H. E., is continuing the work there of preparing plans for the Lake McDonald West Side Road. In addition to this, Mr. Peterson made a definite reconnaissance along the east side of Lake McDonald from the foot of the Lake to Lewis' hotel, a distance of about 8 miles..

On July 17, the people of the county of Skamania, Washington, voted to bond the county for \$210,000, to build a road through the county along the northerly bank of the Columbia River, and requested engineering assistance of the Office.

DIVISION OF ROAD MATERIAL TESTS AND RESEARCH. Prévost Hubbard, Chief.

Projects:

Administration.

On July 1 a new division was created by combining the Division of Chemistry, the Laboratory of Physical Tests, and the Microscopic Laboratory. This new division has been placed in charge of Prévost Hubbard who resigned from the Institute of Industrial Research to accept the position of Chemical Engineer with this Office. As its name implies, all routine tests of road materials will be made by this Division, and research undertaken relative to the physical and chemical properties of these materials as affecting their use and value in road construction and maintenance. In this connection it is hoped that, as they occur, problems relative to materials of construction will be promptly brought to the attention of the Division by engineers of the Office in order that the Division may prove of maximum practical value through close cooperation with the engineering force.

The organization of the Division of Road Material Tests and Research as of date of July 1, is as follows:

Prévost Hubbard, Chemical Engineer, Chief.

Chemical Laboratory	:	Physical Laboratory	:	Microscopic Laboratory
C. S. Reeve,	:	F. H. Jackson,	:	E. C. E. Lord,
Chemist in charge.	:	Assistant Testing	:	Petrographer in charge.
	:	Engineer in charge.	:	
E. P. Pritchard	:	M. R. Walton	:	W. Grant
B. A. Anderton	:	E. R. Eberle	:	
R. H. Lewis	:	E. T. MacMahon	:	
B. Kamrass	:	S. M. Watson	:	
H. A. Draper	:		:	
L. W. Felton	:		:	

On July 20, M. R. Walton resigned from the Office to accept a position with the Ontario Highway Commission.

Routine Tests and Analyses.

38 samples of bituminous material were examined during July.

69 samples of rock, slag, cement, etc., were examined in the Physical Testing Laboratory during the month.

70 samples of rock, slag, etc., were examined and classified in the Microscopic Laboratory during this period.

Research upon the Properties of Dust

Preventives and Road Binders.

Plans are being made for the erection of a small refining plant for an exhaustive study of the effect of various refining methods upon the physical and chemical properties of oils, asphalts, and tars.

An investigation of the chemical and physical effect of oil in oil-cement concrete will be begun in the near future. It is believed that considerable information on this matter may be obtained through the use of the ultra microscope.

Standardization of Methods of Testing.

Work on the preparation of a standard penetration needle for testing bituminous materials is about completed. It is believed that a needle of definite dimensions which can be readily manufactured, can be adopted as standard, and that the results obtained by the use of this needle will be practically equivalent to those obtained with the ordinary No. 2 cambric needle, which, however, owing to variations in the taper of its point, does not serve as a satisfactory standard and can not be accurately described in specifications.

Very promising results have been obtained by a modification of the fixed carbon determination for testing bituminous materials which tend to foam when subjected to high temperatures. It is believed that this modification will not seriously affect the results of the test but will make possible the examination of materials which have heretofore given widely varying results and in some cases have been impossible to subject to this test.

Work has been begun to find some uniform test which will accurately measure the consistency of both asphalts and fluid petroleum and asphalt products.

Research work on the standardization of an abrasion test for gravel is being pushed, but owing to the large volume of routine work in the Physical Testing Laboratory it has been impossible to obtain conclusive results as yet.

Journal of Management Education

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Experimental Bituminous Road Construction and Maintenance.

During the month of July, C. S. Reeve and B. A. Anderton co-operated with the Division of Maintenance in the re-treatment with tar of Section 1 of the Rockville Pike. B. Kamrass inspected the tar at the plant of the Barrett Company, Washington, D. C.; for this work.

Cooperative work with the Division of Construction has been begun by B. A. Anderton in connection with the laying of bituminous surfaces by the mixing method on the Mount Vernon Avenue Experimental Road.

DIVISION OF ROAD ECONOMICS
J. E. Pennybacker, Chief.
- - - -

Projects:

General Statistical and Research Investigations:

The assembling of the data in regard to road mileage, revenues, and expenditures has been practically completed for five states, while about twelve others are nearing completion. It is unfortunate that the request made last month for assistance from the field men of this Office in collecting and checking this data has not met with more prompt attention. Returns have as yet been received only from one man.

Model Convict Camp:

Unanticipated difficulties of a technical character have halted the plans for the establishment of an experimental convict camp in Berkeley County, West Virginia, and it may be necessary to abandon that location. However, negotiations are now under way with the county authorities of Fulton County, Georgia, and Kanawha County, West Virginia, and it is probable that the plans of this office may be carried out in one or both of these counties.

The work on the bulletin, which has been somewhat delayed by the preparations for the experimental camp, is progressing satisfactorily and the bulletin will probably be ready for publication in the fall.

Advice to State Highway Departments:

J. E. Pennybacker appeared before the legislature of Atlanta, Georgia, and gave advice and assistance in the formulation of a bill providing for a state highway department.

E. H. Barber has returned from Kentucky, where he advised the State Commissioner of Public Roads with reference to his organization and the installation of a system of field and office records. Upon the completion of this work he will resume his general work of studying systems of State highway management in various States.

Economic Study of County Highway Systems:

R. F. Eastham has been engaged in Weakley County, Tennessee, with advice, inspection, and survey in regard to proposed highway improvements. He is also making an economic study of this county. A. S. Brainard has been engaged in economic studies of the town highway systems of Maine, Vermont, New Hampshire, and Connecticut.

Railroad Cooperation in Reduction of Road Material Freight Rates:

Data in regard to freight rates on road materials have now been collected and plotted in form of curves for practically all of the principal railroads of the United States. These curves and tables show most conclusively the wide variations in rates for this class of materials in various sections, as well as among the several roads in the same sections. Negotiations are in progress which it is hoped will lead to a more scientific basis for rate-making in regard to road materials, and thereby greatly facilitate road improvement.

Lectures and Road Model Exhibits:

L. F. Boykin represented this Office on the annual tour of the Western Michigan Pike Association, on which he delivered 25 lectures, 6 of which were illustrated. The tour was made by automobile from St. Joseph to Manatee. The weather was fine and large audiences were present at all the stops along the route. During the last week of July, Mr. Boykin was engaged on a lecture tour in Congressman Hull's district in Tennessee.

George R. Marshall, S.R.C., was engaged on a lecture tour and educational campaign in connection with the extension work of the Texas State College. Mr. Marshall will continue on this work until about the middle of August, when he will relieve M.O. Eldridge at the Panama-Pacific International Exposition.

J. J. Tobin lectured at Chautauquas at the following places during the month: Abingdon, Virginia; Mullens, West Virginia; and Seneca, South Carolina.

Photographic Section:

During the present month 54 sets of slides have been loaned upon requests of lecturers, in addition to those which have been sent to employees of this Office.

Library and Publications:

On July 13 the Library sent requests to all the State Highway Departments and in States having no highway department to the State Geologist or Engineer, asking for the latest highway maps that may have been published by those Departments, showing roads suitable for automobile tourists. This resulted in the information listed below. Where the State road official or highway department is not located at the capital of the State, the name of the city is given, and where the maps are dated it is so specified.

ALABAMA

The State Highway Department has submitted to the legislature a map showing a proposed system of trunk roads for Alabama. If confirmed by the Legislature, the map will be published shortly.

CALIFORNIA

The California Highway Commission has no automobile tourists' maps for public distribution.

COLORADO

The State Highway Commission has a printed "sketch map" with primary and secondary State highways and advisory board districts shown in colors. The latest one issued was in December, 1914.

CONNECTICUT

The State Highway Commission sent a blue print map showing Trunk Lines. They are working on a map showing all State Roads and blue print will be furnished this Office.

DELAWARE

In the biennial report for 1913 and 1914 of the New Castle County State Highway Commissioner is a map showing improved stone roads, toll roads, and gravel roads.

GEORGIA

The State Geologist writes "no official highway map of Georgia has been issued".

ILLINOIS

The State Highway Department has published no State road map.

IOWA

The Iowa State Highway Commission, Ames, Iowa, has a printed map folded in convenient pocket size, showing the county good road system adopted by the Highway Commission.

KENTUCKY

The Department of Public Roads has published no State road map.

LOUISIANA

The Highway Department, New Orleans, sends a blue print map showing the proposed system of State aid highways, with roads surveyed and being surveyed. The Department has under preparation a map showing all of the public roads, railroads, navigable streams, etc., throughout the State.

MAINE

The State Highway Commission has not published a highway map, but they have one in course of preparation.

MARYLAND

The State Roads Commission, Baltimore, has a small printed map showing the State road system. They expect to issue a more complete map within the next two or three months.

MICHIGAN

The State Highway Department has a printed map of the upper and lower peninsulas (separately) showing State reward roads. They also furnished the Office with a map in two sections published by John F. Wellist, 1955 Jefferson Ave., S.E., Grand Rapids, Mich., showing main roads, second-class roads, common dirt roads, railroads, electric roads, and county lines.

MINNESOTA

The State Highway Commission furnished a printed map showing State roads and State rural highways, together with the information that all main lines of travel in the State are "blazed". The State law provides a fund for maintaining the State roads.

MISSISSIPPI

The State Department of Agriculture has published no state road map.

MISSOURI

The State Highway Commissioner, Louisiana, Mo., writes that no State road map has been published.

MONTANA

The Montana Highway Commission has a printed map folded into small book size, showing State roads, county roads, county boundaries, county seats, etc. The latest one was published November 30, 1914.

NEBRASKA

The State Engineer has published no State road map.

NEVADA

The State Engineer has published no State road map.

NEW HAMPSHIRE

The State Superintendent of Highways furnished a printed map showing State Roads, State-Aid roads, and trunk lines.

NEW JERSEY

The Department of Public Roads has issued no road map this year, owing to shortage of appropriation, and all previous editions are exhausted.

NEW MEXICO

The State Engineer furnished the Office with blue print map showing primary, secondary, tertiary, impassable, and proposed roads. These are available automobile routes. There is another blue print map which shows the State routes. The State Engineer has also published a very interesting illustrated book on El Camino Real.

NEW YORK

The State Commission of Highways furnished a white print map showing State and county systems of highways completed and under construction up to March 1, 1915.

NORTH CAROLINA

The North Carolina Geological and Economic Survey at Chapel Hill has issued a pamphlet, in conjunction with the National Highways Association, entitled "Good Roads Everywhere" which contains a map of the State showing through highways and "some present highways".

NORTH DAKOTA

No highway map has been issued. The State Engineer is in charge of the road work in which the State participates.

OHIO

The State Highway Department has printed maps, 20x24, showing main market roads and inter-county highways. This was published this year. They also issue Bulletin 23, giving names and numbers of inter-county highways and main market routes and highway statistics of each county.

PENNSYLVANIA

The State Highway Department furnished printed maps of southeastern and southwestern Pennsylvania. The other sections of the State are in preparation, but the date for distribution is not known. They are also preparing a new map to include the routes taken over by the State June 1, 1915. This will be ready for distribution in October.

RHODE ISLAND

The State Board of Public Roads furnished a printed map showing State roads to be maintained in 1914.

SOUTH CAROLINA

The State Department of Agriculture, Commerce, and Industries issues route books showing the main public highways of the State, as well as a pamphlet on the Washington-Atlanta Highway.

SOUTH DAKOTA

The State Department of Immigration issues a printed map showing the chief automobile roads. This map also gives information concerning the natural resources of the State.

TENNESSEE

Has published no State road map.

TEXAS

The Division of Highway Engineering of the Agricultural and Mechanical College has published no State road map, but is gathering statistical data now which may be used in a map.

REPORT OF THE COMMISSIONER OF THE GENERAL LAND OFFICE
FOR THE YEAR 1890

OF THE
LANDS
AND
MINES
DEPARTMENT
OF THE
UNITED STATES
OF AMERICA

WASHINGTON
GOVERNMENT PRINTING OFFICE
1891

CONTENTS
CHAPTER I
GENERAL STATEMENT OF THE LANDS AND MINES DEPARTMENT
CHAPTER II
LANDS
CHAPTER III
MINES
CHAPTER IV
WATER RIGHTS
CHAPTER V
FOREST RESERVES
CHAPTER VI
PUBLIC LANDS
CHAPTER VII
MINERAL RESOURCES
CHAPTER VIII
LANDS BELONGING TO THE UNITED STATES
CHAPTER IX
LANDS BELONGING TO THE STATES
CHAPTER X
LANDS BELONGING TO THE PRIVATE OWNERS

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GENERAL STATEMENT OF THE LANDS AND MINES DEPARTMENT
CHAPTER II
LANDS
CHAPTER III
MINES
CHAPTER IV
WATER RIGHTS
CHAPTER V
FOREST RESERVES
CHAPTER VI
PUBLIC LANDS
CHAPTER VII
MINERAL RESOURCES
CHAPTER VIII
LANDS BELONGING TO THE UNITED STATES
CHAPTER IX
LANDS BELONGING TO THE STATES
CHAPTER X
LANDS BELONGING TO THE PRIVATE OWNERS

UTAH

The State Road Commission has issued a printed map showing State, county, and private roads, and trails. This map was issued for 1913-14.

VERMONT

The State Highway Commissioner furnished a printed map showing trunk lines or cross State roads, most important town and county roads, and ordinary town roads.

WASHINGTON

The Highway Commissioner furnished a printed map, dated 1912, showing main traveled roads open to automobile travel and those open to team travel only, also a map showing the State highways authorized by legislative acts of 1915.

WEST VIRGINIA

The Chairman and Chief Engineer, State Road Bureau, Morgantown, W. Va., has published no State road map.

WYOMING

The State Engineer furnished a small printed map showing State highways and important connecting roads.

Up to date the following have made no reply to our inquiry: State Engineer, Arizona; State Highway Engineer, Arkansas; State Highway Commissioner, Idaho; Highway Engineer, State Agricultural College, Manhattan, Kansas; State Highway Commission, Boston; State Highway Engineer, Oregon; State Highway Commission, Virginia; State Highway Commission, Madison, Wisconsin; the State Geologist, Florida; and the State Geologist, Indiana.

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RURAL ENGINEERING AND FIELD EXPERIMENTS

E.B. McCormick, Mechanical Engineer,
In Charge.

Projects:

Domestic Water Supplies and Sewage Disposal:

G.M. Warren, D.E., is engaged in this work in part. Requests for detailed advice, both written and verbal, regarding water supply and protection of sources, closets, cesspools, tanks, and modern methods of disposal of sewage and garbage have been numerous and have received attention. The plans and specifications for the sewage disposal plant to be erected near Washington and spoken of last month have been completed and submitted to the Maryland State Board of Health for approval.

Farm Buildings:

W. A. Etherton, Architect, has just finished a third set of plans for portable building units for a convict construction camp.

During July, W. Ashby, has prepared several sketch plans of barns in accordance with the requests of the United States Agents. He is now engaged on designs of special framing for a hay shed, the trusses of which were designed as a three-hinged arch. By the addition of stock-feeding sheds on the sides, the structure becomes a barn of a popular type.

After the meeting, the
the following was discussed:

1. The meeting was held on
the 11th of the month.

2. The meeting was held on
the 11th of the month.

3. The meeting was held on
the 11th of the month.

4. The meeting was held on
the 11th of the month.

5. The meeting was held on
the 11th of the month.

6. The meeting was held on
the 11th of the month.

7. The meeting was held on
the 11th of the month.

8. The meeting was held on
the 11th of the month.

M.C.Betts has completed his report of the investigations in the south, which is descriptive of present housing conditions in the southern rural districts and contains suggestions as to the most needed and practical treatments. He is now engaged in preparing a plan which will embody such improvements as will be suitable for a southern farmhouse.

W. R. Humphreys has completed his report on investigational work in Kansas. He is now working on farmstead layouts, which includes the proper location of all farm buildings with respect to each other.

Problems Involving Mechanical Principles:

Requests for information and advice relating to the following lines of work have received attention during the past month: Electric lighting plants for farms; ice and refrigerating houses for family purposes; residential heating plants; lightning rods; utilization of stream flow for generation of power on the farm; general refrigeration principles; windmills; and incinerators. A special effort has been made to obtain data and designs of incinerators and garbage reduction plants in order to be able to intelligently advise inquiries as to designs best suited to their needs.

The work on the study and collection of data for the preparation of a bulletin on the "Development of Power in the Farm", mentioned in the July 1 News Letter, is being continued. The assistance which the men in the field may be able to render in connection with this work and with that in the water supply and sewage disposal, is again urged.

Cooperative Work in Rural Engineering:

E.B. McCormick, Mechanical Engineer, has just returned from an extended trip in the northwestern part of the United States, organizing and conducting some of the cooperative work in the investigations of thresher explosions. This is a cooperative project with the Bureau of Chemistry and seeks to discover the cause and a remedy for the explosion of thresher machines. D.A. Price of the Bureau of Chemistry is in direct charge of the field work and is located in Room 404, Federal Building, Spokane, Washington. J.E.Young and J.C.Woodson have been appointed as engineers on this work. They will work out from Spokane, unless the investigation requires work in another territory.

A cooperative project is being organized to investigate the efficiency of spraying apparatus, which project is in cooperation with the Bureau of Plant Industry and with the Bureau of Entomology. E.B.Smith, Associate Mechanical Engineer, has been assigned on the engineering work of this project.

Concrete Investigations:

The second one of the series of large bridge-slab tests was loaded to the breaking point on Monday, July 26. This slab was the same as the previous one, except that it was of 10-inch total thickness instead of 12 inches. The reinforcing was 3/4-inch square bars placed only across the span, spaced 8-7/8 inches. The

span was 16 feet clear, and the width was 32 feet. The final breaking load was 88,000 pounds concentrated at the center on an area of 14x22 inches.

Field Experiments, Traction Tests:

The dynamometer wagon has been delivered to the Office by the local repair shop. In assembling the dynamometer for this wagon, some of the parts which it was thought at first could be used were found to be so damaged that complete new parts had to be made, and this has occasioned considerable delay. Owing to the large amount of work in the shop on the repairs and construction of the dynamometer wagon, alterations to the equipment of the dynamometer car have been temporarily suspended.

The working up of original data on the Greenwood, Mississippi, project has been started.

DIVISION OF ACCOUNTS
W. Carl Wyatt, in Charge.

Below is a list of the projects or subactivities for the fiscal year 1915-1916. In the future when forwarding your salary voucher a memorandum should be attached to same showing to which subactivity or subactivities your salary is to be charged, and the regular project report should accompany your reimbursement account. Failure to forward the memorandum with the salary voucher will cause delay in payment as the Office must know to which subactivity the salary is chargeable before allowing the account to pass to the disbursing officer for settlement. It will be sufficient if on your memorandum you merely indicate by letters the subactivity, as, for instance, you may state, August 1-10, II-(c); August 11-27, II-(d)-(3); and August 28-31, II-(f); instead of Road Management Investigations: Convict Labor Studies; Road Management Investigations: Economic Study of Highway Systems; Study of County and Township Systems; Road Management Investigations: Advice, Lectures, and Demonstration of Road and Bridge Models, respectively.

I. GENERAL ADMINISTRATION

II. ROAD MANAGEMENT INVESTIGATIONS

- (a) Administration
- (b) General statistical and research investigations
 - (1) Road mileage, revenues and expenditures, 1914
 - (2) Collection of current data relating to highways
- (c) Road management; convict labor studies
- (d) Economic study of highway systems
 - (1) Economic studies in selected counties
 - (2) Economic study of selected post roads
 - (3) Study of county and township systems
 - (4) State highway department studies
- (e) Traffic census
- (f) Advice, lectures and demonstration of road and bridge models
- (g) Instruction of students in highway engineering (No expenses during fiscal year 1915-16)
- (h) Observation of experimental convict camp

III. INVESTIGATING ROAD BUILDING AND MAINTENANCE

- (a) Administration
- (b) Object-lesson roads
- (c) County systems
- (d) Inspection, advice and lectures
- (e) Superintendence of county roads
- (f) Bridges
- (g) Instruction of students in highway engineering (No expenses during fiscal year 1915-16)
- (h) Improvement of roads in U. S. Forest Reserves: Advice and supervision
- (i) Improvement of roads in National Parks: Advice and supervision

- (j) Road maintenance: Advice and supervision
 - (1) Representative state systems
 - (2) Representative county systems
 - (3) Post roads
 - (4) Washington-Atlanta Highway
 - (5) Cost-data
 - (6) Organized maintenance of bond aided roads
- (k) Improvement of post roads pursuant to Act of Congress of August, 1912.

IV. ROAD MATERIAL INVESTIGATIONS

- (a) Administration and supervision
- (b) Routine chemical testing and inspecting of dust preventives and road binders and materials allied to road construction.
- (c) Microscopic examination and classification of road building rocks
- (d) Research upon properties of dust preventives and road binders
- (e) Standardization of methods of testing bituminous road materials
- (f) Experimental bituminous road construction and maintenance
- (g) Instruction of students in highway engineering (No expenses during fiscal year 1915-16)
- (h) Physical testing of road building materials
- (i) Concrete investigations
- (j) Non-bituminous road materials investigations
- (k) Standardization of tests on non-bituminous road materials
- (l) Instrument making and repairing

V. FIELD EXPERIMENTS

- (a) Administration and supervision
- (b) Construction and maintenance of roads to determine the relative values of road building materials and methods of construction
- (c) Traction tests

VI. IRRIGATION INVESTIGATIONS

- (a) Supervision
- (b) Utilization of water in irrigation
- (c) Pumping for irrigation
- (d) Appliances and equipment for irrigation
- (e) Flow of water in ditches, pipes, and other conduits
- (f) Measurement of water
- (g) Customs, regulations, and laws relating to irrigation
- (h) Expert advice and assistance.

VII. DRAINAGE INVESTIGATIONS

- (a) Administration
- (b) Construction, operation and maintenance of drainage improvements
- (c) Drainage of peat, turf and muck lands
- (d)-(1) Farm drainage: research
- (d)-(2) Farm drainage: extension
- (e) Irrigated lands
- (f) Overflow lands
- (g) Swamp lands

1911
1912

1913

1914

1915

1916
1917

(h) Organization, financing, and legal regulations of drainage districts

(i) Run-off investigations

(j) Tidal marshes

VIII. RURAL ENGINEERING

(a) Administration

(b) Rural Engineering

DIVISION OF IRRIGATION INVESTIGATIONS

Samuel Fortier, Chief

Projects:

Administration.

During the past month Mr. Fortier inspected the Kansas and Nebraska, Colorado, Wyoming, Montana and Idaho fields of Irrigation Investigations, and expected to arrive in Utah early in August. He will probably spend the greater part of August in the Pacific coast states, returning to Washington about the middle of September. Mr. Fortier met Capt. Wilson in Fort Collins, Colorado, and was accompanied by him on a part of the inspection, assisting in the selection of the rooms in Denver which are to be the headquarters of the Office in the Mountain states. These rooms are in the Tramway building, at 14th and Arapahoe streets. A lease is being drawn to cover the rental of four rooms on the third floor of this building, with the privilege of renting additional space if it should be needed. A part of the equipment at Cheyenne has already been sent to Denver, and the transfer of the other Offices of the Division in the mountain states will be made as rapidly as possible.

The Office is in correspondence with the officials of the University of California relative to the establishment of Pacific coast headquarters on the campus of the University. The University has promised to supply quarters for the accommodation of the various divisions of the Office which are engaged in investigations in the coast states, but has not indicated whether it will be possible to extend the present quarters of Farm Irrigation in Budd Hall, or whether suitable rooms will be assigned in some other building of the University group. Meanwhile the offices which have been maintained by the Division in the various states are being continued, but all leases were terminated with the beginning of the fiscal year.

The headquarters of M. B. Williams, I.E., and F. W. Stanley, I.E., who are engaged in the irrigation investigations in the Eastern states, have been transferred to Washington. Mr. Williams had been stationed at Moorestown, N. J., and Mr. Stanley at Orlando, Fla. Guy Ervin, clerk in the Washington office, has been assisting in the surveys made in the Eastern states during the summer.

Utilization of Water.

The Board of Water Engineers of Texas has proposed a duty of water investigation to be carried on in cooperation with this Office, an appropriation by the State Legislature for this purpose having become available. W. L. Rockwell, I.E., has been

"*Chrysomelidae*"

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conducting a series of investigations for several months past at Mercedes, which may be made the basis of work under the co-operation. Mr. Rockwell's studies have involved the application of water to the various types of soil found in the Rio Grande valley, in different sized streams and in furrows with different spacings; and by soil moisture determinations is ascertaining what practice gives the best distribution of moisture in the soil, the amount of water required to maintain proper soil moisture conditions, and the amount of water which can be applied to the soil at one time without loss from deep percolation.

S. T. Harding, I.E., has completed the duty of water studies on the Minidoka project of the U. S. Reclamation Service, in Idaho, which were undertaken at the invitation of the Service. This work followed similar lines to those of the studies conducted by Mr. Harding in the Yellowstone valley of Montana in 1913 and 1914. His report on the work will be delayed until records of the Service on gross distribution of water are available.

A lease is being drawn in the Solicitor's Office covering the rental of a two-acre plot of land on the outskirts of Denver for the experiments in the movement of soil moisture mentioned in last month's news letter.

Pumping for Irrigation.

During his inspection of the work in Western Kansas Mr. Fortier took notes on the wide development of pumping for irrigation which has taken place in the Arkansas valley in recent years. The United States Sugar Company has increased the acreage irrigated from its pumps from 12,000 acres to 18,500 acres since 1913, much of the pumping being done under electric power. It is planned to extend the present studies of pumping now carried on at the Garden City station so as to include the other plants in the valley, and to coordinate these investigations with the others along similar lines in the semi-arid belt with the purpose of working the data secured into a popular bulletin on pumping for irrigation in the semi-arid states.

Measurement of Water.

An article on Experiments in the Use of Current Meters in Irrigation Canals by S. T. Harding, I.E., has been passed for early publication in the Journal of Agricultural Research. The article is an analysis of a large number of measurements by current meter, made to discover a method of determining stream velocity and discharge which would call for a minimum number of meter readings horizontally.

Bulletin 207, of the Colorado Experiment Station on The Colorado Statute Inch and Some Miner's Inch Measuring Devices, by V. M. Cone, I.E., has just been published by the station.

Expert Advice and Assistance.

The Secretary has designated Frank Adams, I. M., to represent the Office at the International Irrigation Congress in California during September.

DIVISION OF DRAINAGE INVESTIGATIONS
S. H. McCrory, Chief.

Projects:

Administration.

From July 17-19, S. H. McCrory, Chief of Drainage Investigations, was in Kentucky with J. V. Phillips inspecting the work being done on the Panther Creek Drainage District under the direction of Mr. Phillips.

D. G. Miller, who has been in the Washington office since the first of the year, returned to Grand Junction on June 30, where he will close up the work in that vicinity prior to transferring his office to Denver.

R. D. Marsden, who had been in the field making investigations relating to peat, turf, and muck lands, returned to the Office July 9, to assist in the Office administration.

D. E. Heizer closed up the office at Roswell, N. M., and left for Denver, Colo., on July 1.

Lewis A. Jones was at the Washington office July 20-24, for the purpose of conferring with Mr. McCrory relative to certain administrative details as well as discussing the report to be prepared by Mr. Jones and Mr. Ramser on the Kootenai River Drainage District, Mr. Ramser having arrived at the Office July 20.

Farm Drainage.

J. R. Haswell during part of the month has been rendering assistance to the farmers in Delaware and Maryland.

D. E. Yarnell has also assisted in the Maryland work in addition to continuing his work in Virginia and West Virginia.

Reports transmitted:

- D- 5 Brown Brothers Farm, Queen Anne County, Maryland - by J. R. Haswell, D. E.
- D- 5 Lipscomb Sunset Farm, Talbot County, Maryland - by J. R. Haswell, D. E.
- D- 5 Noch Farm, Worcester County, Maryland - by J. R. Haswell.
- D- 6 Galpin Farm, Sweet Hall, Virginia - by D. L. Yarnell, D.E.
- D- 7 Aultz Farm, near Sissonville, West Va. - by D. L. Yarnell.
- D- 7 Beech Bottoms, near Wheeling, West Va. - by D. L. Yarnell.
- D- 7 Crane Farm, near Sissonville, West Va. - by D. L. Yarnell.
- D- 7 Kanawha County Farm, Kanawha County, West Va. - by D. L. Yarnell, D. E.
- D- 8 Borden Farm, Wayne County, North Carolina - by F. R. Baker*.
- D- 8-X McCrory Farm, Randolph County, North Carolina - by H. M. Lynde, S.D.E.
- D- 8-X Ramsaur Farm, Bladen County, N. C. - by F. R. Baker*.
- D- 8-X State Hospital Farm, Wayne County, N. C. - by F. R. Baker*.
- D-26-B Morrisetti Farm, Newbern, Alabama - by Lewis A. Jones, S.D.E.
- D-26-B Spencer Farm, near Gallion, Ala. - by Lewis A. Jones.
- D-26-B Thompson Farm, Macon County, Ala. - by Lewis A. Jones.
- D-27 Richard Farm, near Pecan, Miss. - by Lewis A. Jones.
- D-29-U Page-Hart Farm, Jackson County, Ark. - by O. G. Baxter.
- D-32-I Harris County Administration Farm, Bellaire, Texas - by H. A. Kipp, D.E.

*Assistant Drainage Engineer furnished by North Carolina Department of Agriculture.



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- D- 3 Wanabrook Farm, Bradford County, Pa.- by J. R. Haswell, D.E.
- D- 5 Buckley Farm, College Park, Md.- by D. L. Yarnell, D.E.
- D- 5 Leonard Hill Farm, St. Mary's County, Md.- by D. L. Yarnell.
- D- 5 McCabe Farm, Worcester County, Md.- by J. R. Haswell, D.E.
- D- 9 Tile Drainage in South Carolina - by F. G. Eason, D.E.

Overflowed Lands.

From July 12 to July 20, H. H. Barrows was with J. V. Phillips inspecting the Panther Creek Drainage District, Kentucky. As Mr. Barrows will assist in the preparation of this report it seemed advisable that he should familiarize himself with field conditions.

During July, F. G. Eason has been engaged in making preliminary examinations of a number of overflowed sections in Georgia.

Fred F. Shafer has completed a survey of the Mayfield Creek Drainage District, Kentucky, and is now in the Office preparing his report on that project.

Reports transmitted:

- D- 6 Sandy Creek, Pittsylvania County, Va.- by D. L. Yarnell, D.E.
- D- 8-X Grindool Creek, Pitt County, N. C.- by H. M. Lynde, S.D.E.
- D- 9 Gills Creek, Abbeville County, S. C.- by F. G. Eason, D.E.
- D-26 Huntsville Spring Creek, Madison County, Alabama - by Lewis A. Jones, S.D.E.

Swamp Lands.

Reports transmitted:

- D- 9 Maple Swamp Drainage District, Dillon County, S. C. - by F. G. Eason, D. E.
- D-32 Inspection of Drainage Districts, Coastal Plain, Texas - by H. A. Kipp, D. E.

Irrigated Lands.

Guy A. Hart has been transferred from Oregon to Twin Falls, Idaho. He will assist W. G. Sloan.

D. E. Heizer has been engaged during the month in making an investigation in the vicinity of Greeley, Colo., and Worland, Wyo.

W. A. Kelly has made an inspection of drainage conditions along the coast of Washington.

Reports transmitted:

- D-32 Jungren Farm, near San Benito, Texas - by W. N. Hall, D. E.
- D-36 Carman Tract, Grand Junction, Colo.- by L. T. Jessup, J.D.E.
- D-36 Vineland Drainage District, Vineland, Colorado - by L. T. Jessup, J.D.E.
- D-36 Las Animas Consolidated Drainage District (inspection) - by D. E. Heizer, J.D.E.
- D-36 Dewey Tract, near Fruita, Colo.- by L. T. Jessup, J.D.E.
- D-36-D Dikes on McKinney Tract near Grand Junction, Colo.- by L. T. Jessup.
- D-36-F Carmel Drainage District, San Luis Valley, Colorado - by D. G. Miller, S.D.E.
- D-36-I Bingham Tract, near Canon City, Colo.- by L. T. Jessup.
- D-36-I Gibson Tract, near Canon City, Colo.- by L. T. Jessup.

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1. The first of these is the fact that the Commission has not yet received any information from the Government of the United States regarding the activities of the Committee for the Liberation of the People of the South (CLPS) in the United States. This is a serious omission, as the Commission is required to report on the activities of all groups and individuals who are active in the United States and who are engaged in activities which are aimed at the overthrow of the Government of the United States.

27th Nov 1952

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1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific information required.

- D-36-I Rogers Tract, near Canon City, Colo.- by L. T. Jessup.
- D-36-I Drainage of Shale Lands, Canon City, Colo.- by L. T. Jessup, J.D.E.
- D-37-C Drainage in the Vicinity of Maxwell City, N. M. - by D. E. Heizer, J.D.E.
- D-38-C Tempe Drainage District, Maricopa County, Arizona - by R. A. Hart, S.D.E.
- D-42 Leonard Drainage District, Josephine County, Oregon - by Guy A. Hart, J.D.E.
- D-43 Thomas Tract, Santa Clara County, Calif.- by W. W. Weir, S. D. E.

Reports received:

- D-34-N Drainage District No. 1, Ada County, Idaho - by W. G. Sloan, D.E.

Run-Off Investigations.

In connection with the Panther Creek survey, Willis E. Comfort is making stream gagings of that creek so that more accurate data may be had for use in the preparation of a report.

Reports transmitted:

- D- 8-Y Run-off Investigations, Chadbourn Drainage District, North Carolina - by F. G. Eason, D.E.

Reports received:

- D-41-E Run-off Investigations over Yakima Valley drains - by W. A. Kelly, D.E.

Organization, Financing, and Legal
Regulations of Drainage Districts.

From July 2 to July 26, H. S. Yohe was in the field conferring with representatives of bonding and banking houses who purchase bonds issued by drainage districts for the purpose of ascertaining the views of these institutions with regard to drainage securities. From the information secured and the further investigations to be made it is hoped that the Office will soon be in a position to give pertinent suggestions to districts with respect to their organization and administration, so that drainage securities may be disposed of to better advantage and that the marketability of such securities may be enlarged. Thus far the investigation has shown that there has been a laxity in administration of drainage districts; that the legal requirements are frequently not complied with strictly. The investigation covers a wide field and the earnest cooperation of all members of the staff is desired. If any member of the staff learns of any information on this subject the Office will always be glad to be advised in detail.

